YW

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,246	08/30/2001	Duane Q. Huynh	SJO920010065US1	8283

48583 7590 04/07/2005

BRACEWELL & PATTERSON, LLP
PO BOX 61389
HOUSTON, TX 77208-1389

EXAMINER	
CHEN, TIANJIE	

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,246	HUYNH, DUANE Q.	
	Examiner	Art Unit	
	Tianjie Chen	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-13* is/are allowed.

6)☒ Claim(s) *1-3 and 6* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

2nd Non-Final Rejection

1. Applicant's Appeal brief has been considered. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Peterson et al (US 5,999,372).

With regard tom claim 1, Peterson et al shows an actuator for a data storage device in Fig. 1, including: an actuator comb (Fig. 2) having a pivot assembly aperture and an actuator arm 116; a leading edge 132 (Fig. 2) on the actuator arm; a trailing edge 132 (Fig. 2) on the actuator arm; and wherein the leading edge and the trailing edge have aerodynamic profiles for reducing a coefficient of air flow drag for the actuator arm (Column 2, lines 33-35), the leading and trailing are tapered along the whole length including the respective ends.

With regard to claim 2, Peterson et al further shows that the leading and trailing edges 132 are symmetrical.

With regard to claim 3, Peterson et al further shows that the leading and trailing edges 132 have triangular cross-sectional shapes (Figs. 2 and 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al in view of Williams et al (US 6,538,853).

With regard to claim 6; Peterson et al shows an actuator for data storage device, wherein weight reducing apertures are located in an interior of the actuator arm (Fig. 2), but fails to show aperture has an aerodynamic profile for reducing a coefficient of air flow drag, for the actuator arm.

Williams et al shows an actuator arm having weight reducing aperture 59, which has an aerodynamic profile for reducing the coefficient of air flow drag, for the actuator arm (Fig. 4; column 7, lines 14-18).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to reshape the apertures in Peterson et al's device into the shape taught by Williams et al, which has an aerodynamic profile for reducing the coefficient of air flow drag, for the actuator arm. The rationale is as follows: Peterson et al teaches an actuator arm with apertures and the importance for reducing turbulence, i.e. to reduce the coefficient of air flow drag. Williams teaches carefully shaping the aperture can reduce coefficient of airflow drag (Column 7, lines 14-18). One of ordinary skill in the art would have

been motivated to reshape the apertures to reduce the coefficient of airflow drag, for the actuator arm.

Allowable Subject Matter

4. Claims 7-13 are allowed.

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

- With regard to claims 5, 7, and 11; as the closest reference, Perterson et al (US 5,999,372) shows an actuator for a data storage device, including: an actuator comb having a pivot assembly aperture and an actuator arm 116; a leading edge and a trailing edge on the actuator arm; and wherein the leading edge and the trailing edge have aerodynamic profiles for reducing a coefficient of air flow drag for the actuator arm, the leading and trailing are tapered at respective ends, **but fails to show** that each of the leading and trailing edges extends from the pivot assembly aperture to a suspension tongue.
- Applicant assumes that the disk drive as described would consume less power, thus produce less heat, which must be dissipated. The spindle motor design is reconfigured at a lower torque constant thereby lowering the overall cost of the device (Specification, p. 3).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

5. Applicant's arguments, filed 01/25/2005, with respect to Claims 5, 7, and 11, have been fully considered and are persuasive. The rejection of claims 5, and 7-13 has been withdrawn.

Applicant's arguments filed on 01/25/2005 on claims 1 and 6 have been fully considered but they are not persuasive.

Claim 1: ***Are the leading and trailing edges are tapered at their respective ends?***

Applicant argues in p.3: "*Peterson*, clearly shows in its Figures 1, 2, and 3 that its sides 132 abruptly end as squared-off or flat edges—they are not tapered. For example, in Figure 1 (top view), the four ends (not numbered) of the two sides 132 are visibly perpendicular to their respective lengths. In Figures 2 and 3, the flat distal ends (i.e., arrowheads) of each side 132 are clearly visible. If the ends of Peterson were tapered like the present invention, it would be impossible to see the arrowhead shapes in Figure 2, or the various "C-channel" shapes 230, 233 shown in Figure 3."

Examiner's position: Peterson (US 5,999,372) clearly shows in Fig. 2 both ends of leading edge and trailing edge are tapered along the direction perpendicular to the edges, respectively. The essence of Appellant's argument is that the reference does not show the ends are tapered along the direction of the edges, respectively. However, claim 1 only recites, "the leading and trailing edges are tapered at their respective ends", no direction has been specified for tapering the ends.

Appellant also argues in p.4: "Examiner can try to characterize the length of Peterson's edges as aerodynamic or tapered, but not both."

Examiner's position: as presented above, the ends are tapered; therefore, they are aerodynamic and tapered.

Claim 6: *Do the weight-reducing apertures located in the interior of the actuator arm have aerodynamic profiles?*

Applicant argues in p. 5: "(*Williams*) clearly shows flat; non-aerodynamic side walls 59 in its internal aperture (Figures 4, 6, and 8) that are completely orthogonal to top surface 116. The side walls 59 are parallel to the flat external side walls 64, have the same thickness as the overall thickness of the arms, and therefore do not have an aerodynamic profile-this is completely typical prior art."

Examiner's position: Williams et al (US 6,538,853) specifically states in Column 7, lines 14-18: "each actuator arm 18 can include one (1) or more arm apertures 59 to lighten each actuator arm 18. The size, shape, and number of the arm apertures 59 must be consistent with the need for each actuator arm 18 to be sufficiently rigid and the need to minimize aerodynamic drag and turbulence." It clearly shows that the holes 59 are weight-reducing aperture and it has an aerodynamic profile for reducing a coefficient of air flow drag. Tapered edge can be used as aerodynamic profile for reducing air flow drag, but aerodynamic profile for reducing air flow drag is not necessary to be a tapered profile.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIANJIE CHEN
PRIMARY EXAMINER